

### **AMENDMENTS TO THE SPECIFICATION**

Please amend the specification as follows:

On page 15, line 30 through page 16, line 15 of the Clean Substitute Specification (dated: 8/7/2008):

The central control unit 6, for example, compares the first reference time received from the first fixed base A with the current time in the respective fixed bases B, C, defining time differences corresponding to the propagation time of the pulse from the first fixed base A, retransmitted by the space platform S to the second and third fixed bases B, C. The third fixed base C receives the pulse from the second fixed base B, retransmitted by the space platform S, said information being forwarded to the control unit [[3]] 6, which compares the first reference time received from the second fixed base B with the current time in the third fixed base C, defining the time difference corresponding to the propagation time of the pulse of the second fixed base B, retransmitted by the space platform S to the third fixed base C. The three time differences corresponding to the respective propagation times allow determining the referenced tetrahedron with vertices in the space platform S and in the three fixed bases on the ground.

On page 18, line 14 through line 23 of the Clean Substitute Specification (dated: 8/7/2008):

In another embodiment made possible by the present solution, adopting the retransmission of the pulses received from the reference fixed bases by the targets, their positions can be remotely determined and, in this case, dispensing the use of precision clocks and time comparisons in the targets, after determining the equation of motion of the space platform S and the communication time between the target to have its positioning determined and a control unit [[3]] 6 remote from this target P.

On page 18, line 30 through page 20, line 23 of the Clean Substitute Specification (dated:

8/7/2008);

Figure 2 illustrates the intersection of a first spherical locus LE1, with the radius in the space platform S, which is the locus of all the possible solutions in the space, centered in the space platform S, with a second spherical locus LE2, with the radius in the center O of the earth and which defines a first circular intersection IC1, which is the locus of all the possible solutions on the earth's surface. The system conceives the transmission of electromagnetic waves, for example in radio frequencies, through one, two, or all fixed bases, which are retransmitted by the space platform S and by the target P. The radio-transmissions can be effected in only one or in different frequencies, continuously or by pulses, according to the chosen technologies for codification of the transmitted and received data. These technologies are known and their selection is not an object of the present invention. According to one way of carrying out the present invention, the trajectory of the space platform S is determined based on the determination of the edges and the height of the tetrahedron described above, for a number of positions of said space platform S as a function of time, since for each time interval considered, the present system determines a respective extension of the trajectory of the space platform S. In a first and determined instant, called  $t_1$  herein, said tetrahedron has the edges and height thereof determined by the first fixed base A transmitting its identification code with one instant  $t_1(A)$ . These data, carried by modulated signals or pulses, are received by the space platform S, which retransmits them to the three fixed bases A, B, C, in which are processed the time differences between the arrival instant of the coded signal with the instant  $t_1(A)$  and the local time given by the clocks of the fixed bases  $AA(t_1)$ ,  $AB(t_1)$  and  $AC(t_1)$  in the first, in the second and in the third fixed bases A, B and C, respectively. These three time differences are sent to the central control unit [3] 6, where they are processed to determine the edges of the tetrahedron defined by AS, BS and CS, for the instant  $t_1$ , whereby the height of said tetrahedron is calculated, indicated in figure 1 by the segment  $SS'$ , perpendicular to the plane containing the fixed bases A, B and C. The segment  $SS'$  is the only existing solution for the instant of the measurements and, by determining it, it is possible to calculate the height of the space platform S above the surface of

the earth. The trajectory of the space platform S is established with the successive determination of the edges and height of the new tetrahedrons obtained for a number of positions of the space platform S as a function of time. For each measurement, the segment can be determined by connecting the space platform S to the target P, whose solutions describe a spherical locus, in the space, with the center situated in the space platform S, which intersects the surface of the Earth forming a circle indicated in figure 2, centered in S" and which defines a circular intersection located in the intersection of the axis that connects the space platform S to the center of the earth O.

On page 25, line 21 through line 32 of the Clean Substitute Specification (dated: 8/7/2008):

- comparing said time differences and informing them to the control unit [[3]] 6, through a second data communication device;
- determining, in the control unit [[3]] 6, for each pulse emission instant of the first fixed base A, the lateral edges of a tetrahedron with three vertices defined by the three fixed bases A, B, C and with a fourth vertex defined by the space platform S, based on the time differences between the emission instant of one pulse from the first fixed base A and the reception of said pulse in the first, in the second and in the third fixed bases A, B, C, respectively.

On page 26, line 22 through page 27, line 2 of the Clean Substitute Specification (dated: 8/7/2008):

- comparing said time differences and informing them to the control unit [[3]] 6, through another data communication device;
- determining, in the control unit [[3]] 6, for each pulse emission instant of the first fixed base A, the lateral edges of a tetrahedron with three vertices defined by the three fixed bases A, B, C and the fourth vertex defined by the space platform S, based on the time differences

between the emission instant of one pulse from the first fixed base A and its reception in the first, in the second and in the third fixed bases A, B, C, respectively, in order to allow determining a respective extension of the trajectory of the space platform S, while the latter is visible by the fixed bases.

On page 27, line 26 through page 28, line 20 of the Clean Substitute Specification (dated: 8/7/2008):

The control unit 6 discriminates the pulses, decodes and processes the data, once the propagation velocity of the transmitted waves is known, correcting the systematic delays caused by the transceiver on board the space platform S, so as to allow determining a respective extension of the trajectory of the space platform S while it is visible by the fixed bases.

The control unit 6 receives the pulses with coded data identifying the fixed bases and the target P, as well as the four time differences AB(t1), AC(t1), AA(t1) and AP(t1), which are necessary to determine the three edges of the tetrahedron, uniting the vertices of the latter with the space platform S, as well as the straight line segment between the space platform S and the target whose coordinates on the earth's surface admit all solutions on a circle defined by the intersection of the end of said straight line segment centered in the axis connecting the space platform S to the center O of the earth in the instant t1, corresponding to the equation of the locus IC1 illustrated in figure 3. Two more determinations are effected, in instants t2 and t3, preferably very close and subsequent to the first instant, obtaining the equations of the loci IC2 and IC3 illustrated in figure 3, univocally defining the coordinates of the target P on the earth's surface, with the condition that the projections on the surface of the positions of the space platform S for the three instants are not in a straight line.

On page 28, line 30 through page 29, line 4 of the Clean Substitute Specification (dated: 8/7/2008):

The calculations for determining the coordinates of the target P based upon the

measurements in three or four different preferentially successive instants are effected by the control unit [[3]] 6, by using well known algebraic and geometric formulations, and any system of coordinates can be used, by adopting, for example, the equation of the earth's surface which is more proximate to the geoidal form of the earth in the measurement regions.